Department of Genetics
University of Wisconsin
Madison 6, Wisconsin

January 23, 1953

Dear Dr. Felix:

May I report that the shipment of your phages finally did arrive just one week ago. It had been impounded in customs at Milwaukee. I suspect that ordinary airmail will generally be handled more expeditiously, though there may be other considerations. Thank you very much for your generosity in responding to this request.

I waited these few days to acknowledge receipt so as to attain some familiarity with the phages. I shall be leaving directly for a visit to Chamblee, and will have to put off further work on this for some weeks.

Unfortunately, these phages will not be directly usable in transduction experiments, as they leave very few survivors from most of the Salmonella cultures exposed to them. However, I have discovered a few examples of resistant mutants which still retain their major somatic antigens, and these mutants may be amenable to further study. It seems most likely that these resistants still adsorb the phage, although they are not lysed. For example, one of the resistants displays a remarkable reaction to the synergistic action of PLT-22. Whereas neither PLT-22 nor O #3 exerts any appreciable lysis on this resistant mutant, the two phages together give well defined, clear plaques. This appears not to be due to the development of a new (recombinant) phage, but to the susceptibility of PLT-22-infected bacteria to lysis by O #3.

We have been trying to make some sense out of the host range of PLT-22, not yet entirely successfully. In general, it agrees with the distribution of the XII_2 fraction, but some anomalous paratyphi A strains have turned up. This is one of the questions still to be cleared up, but I note in one of your tables an explicit reference to phages with XII_1, XII_2.. etc receptors. I gather from this that you have already studied this question in some detail; I would be grateful for some enlightenment of its obscurities. In the same vein, may I enquire whether it has been possible to identify, by serological methods, the presumed common receptor for the O phages recently sent? Previous studies on these questions do not appear to be decisive; Burnet's work preceded the most detailed serological analysis of Salmonella, while Boyd has considered only lysis, and not adsorption of his typhimurium phages. (He mentions that "A1" lyses S. bovis-morbificans, which would contradict an otherwise simple scheme, but this has not yet been verifiable, and I wonder whether a second phage, possibly rough-specific, may not be responsible).

In the same tables and discussion, I believe that the Sertic-Boulgakov phage is quoted as specific for flagellar d. While the literature does give this impression, it is based on insufficient study. The phage we received from Boulgakov acts on a sporadic set of cultures with no common flagellar antigens (including b:1,2; i:1,2: d:1,2; b:—, and —:1,2 as well as d:—).

Professor Créze has communicated with me again, despite my protest that you could afford better and more critical advice. At his request, may I formally recommend his address to you. I assume that he will communicate with you further at my advice.

Yours sincerely,

Joshua Lederberg